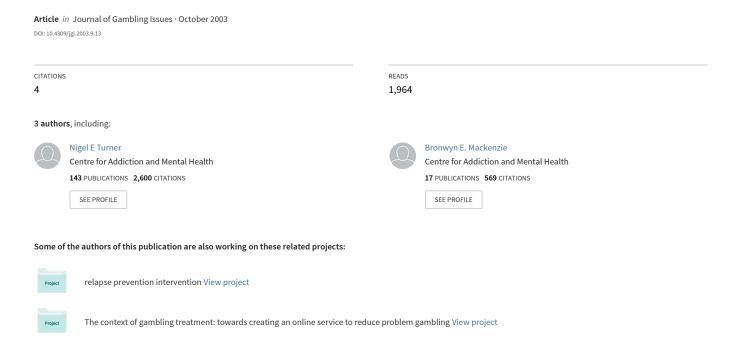
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How to gamble: Information and misinformation in books and other media on gambling

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Abstract

Currently a large number of books, videocassettes and computer programs are available to teach people how to gamble. This article is an examination of this wealth of information. The paper begins by describing the number and types of materials on how to gamble available in an online catalogue and in libraries and bookstores (Study One). The paper then turns the discussion to an examination of the accurate and inaccurate information found in a sample of these materials (Study Two). The studies found that the majority of the material available was on skilled games, but a sizeable number of materials on non-skilled games were also found. The quality of these materials ranged from pure nonsense to accurate. The best materials found were in books on gambling in general and in materials on how to play poker. This paper includes a catalogue of the accurate and inaccurate information found in the books as well as a series of reviews on a number of books, Web sites and other gambling-related material.

Key words: gambling, erroneous beliefs, public information

Introduction

Currently there are a large number of books, magazines, videocassettes and computer programs available to teach people how to gamble. In addition, many casinos and other gambling venues offer pamphlets that detail the rules of various games. The fact that there are a large number of books and other material available does not mean that gamblers use them. However, given the market economics of the book industry, it is reasonable to suggest that there is a large audience for these materials. Many of these books are written by gamblers, which means that these materials may also help us understand the rich subculture of gamblers. This article is an examination of this wealth of information with the goal of (1) examining the number and type of materials available, (2) determining the quality of the materials based on a small sample of them, and (3) providing therapists and other gambling addiction professionals with a guide for evaluating the gambling information contained in these materials.

Gamblers often hold erroneous beliefs about the nature of gambling and specifically about the nature of random events (Wagenaar, 1988; Griffiths, 1995; Ladouceur, Dube, Giroux, Legendre & Gaudet, 1995; Ladouceur & Dube, 1997). These beliefs are not necessarily invented by the gambler; they may also be learned from other gamblers in the form of shared myths, which circulate around the gambling subculture. Many of these misinformed beliefs appear in books on how to gamble, and consequently, are further validated by virtue of being in print.

Current information on how to gamble includes both accurate and inaccurate information. We believe that some problem gambling could be prevented through the dissemination of accurate information about gambling (e.g. Ferland, Ladouceur & Vitaro, 2002; Ladouceur, Vezina, Jacques & Ferland, 2000). Thus, the general public needs direction and informed advice on which materials most accurately depict fundamental underlying principles of games of chance, to promote informed decision-making. Furthermore, the how-to-gamble literature is quite extensive, suggesting there is a great demand for books and other materials on how to gamble. By evaluating this information, we can perhaps encourage the gambling book industry to produce higher quality books containing accurate information.

We will begin this paper by describing the number and types of current materials on how to gamble available in an online catalogue, and in libraries and bookstores (Study One). We will then turn the discussion to an examination of the accurate and inaccurate information about randomness, probability and emotional control, which appear in a small sample of these materials (Study Two).

Study One: Availability and frequency of materials

Sample

The frequency of gambling materials presented here is based on a catalogue of material advertised on the Gambler's Book Shop Web site (www.gamblersbook.com), advertised as the largest selection of gambling books, videotapes and software in the world. Our examination of this and other Web sites did not find any evidence to contradict their claim. We also counted the number of books found in libraries and bookstores in the greater Toronto area, but the main focus of the statistics given in this study is from the Gambler's Book Shop Web site.

The catalogue from the Gambler's Book Shop Web site was downloaded during the winter of 2000 and organized into a spreadsheet. It was later sorted by category to create the frequency of materials described in this study. Didactic materials were the focus of this study, and therefore, materials such as novels or casino guidebooks were excluded from the sample. Redundancy was also taken into account in this collection, and repeated items were removed. A total of 1,157 unique items were identified in the resulting collection of materials, which includes books, software, statistics, charts, magazines and videos on gambling. This sample does not represent an exhaustive search of the available literature. We are aware of several specific books that are not listed on this Web site, but to date, this Web site is the most comprehensive list we have come across.

These materials were then classified according to the type of game covered. The games were grouped into three categories: gambling in general, non-skilled (luck) games, and games of skill. Books on gambling in general were mostly books on how to play casino games. Any book that covered a variety of games was classified as a general book. Most game-specific books cover only a single game. There are some published books that cover two games (e.g. lotteries and sports pools). Most often, these materials were placed into the general category, unless we knew that the material predominantly covered just one of the games. A non-skilled game is one in which the only factor that determines the outcome is random chance. Some games of chance do involve choices of how to bet, but these choices do not constitute a real skill. For example in the game of craps, a pass line bet (a bet that the dice shooter will win) always has a lower house edge than field bet (a bet on a specific number). But you do not gradually become better at making pass line bets. You simply make a relatively good bet or a relatively poor

bet. Many of the choices made in non-skilled games have no impact on the long-term outcome of the game whatsoever. Non-skilled games include roulette, craps, slots, baccarat, lotteries and bingo.

A game of skill is defined as a game in which the player's decisions during the game have a direct impact on their chance of winning and long-term success. In poker, for example, a player with a pair of sevens might fold if someone else had already raised the bet; might call if only one bet had been made; but might raise the bet if he or she was the last player to act (place a bet, call or fold) and no one else had raised. The same hand would be played differently depending on how many players were still in the game, the player's position in on the table (e.g. first to make a bet, last to make a bet, etc.), the type of game and his or her experience with the other players. In skill games the best play depends on the situation. What makes these games skill games is the fact that knowing what choice to make in a given situation will alter the player's long-term expected return. Skill games include poker, blackjack, betting on horseraces and sports betting. In these games, a highly skilled player can theoretically earn enough to overcome the house edge (see Turner, 2001, for related comments). Some games such as video poker involve some skills, but the role of skill is usually too small to allow the player to overcome the house edge. Such games are included amongst the skilled games, in a category we called semi-skilled games.

Results

The total number of materials was 1,157 items. The bulk of the gambling materials found were books. We found a total of 955 unique books on how to gamble available on the Web site. In addition, several other types of material were also found, including computer software (81 items), magazines (55 items), statistics such as data on horseracing (33 items), audio materials (13 items), video materials (12 items) and charts (8 items).

The largest category of available materials was for skilled and semi-skilled games (e.g. 839 items on sports, horseracing and poker, of which 26 items were on semi-skilled games), and the remainder were evenly split between non-skilled games (e.g. bingo, slots; 159 items), and materials on gambling in general (not game-specific; 159 items). We also looked at the breakdown of gambling books in libraries and bookstores in the greater Toronto area.

Skill games

By far, the largest collection of materials found was on games in which winning is affected by the player's skill. A total of 839 items or 70% of all the available materials comprised this category. In order of frequency, these games of skill include sports betting (233 items),

horseracing (220 items), poker (186 items), blackjack (123 items), greyhound racing (51 items), and semi-skilled card games (26 items). The last category, semi-skilled card games, was a mixed collection of games including video poker, Paigow and Let It Ride Poker, each of which was represented by 7 items, and Caribbean Stud Poker, which had 5 items. Each of these games is a variation on poker, played against the casino. These games are semi-skilled because, by using careful play, the player can reduce the house edge, but only to a limited degree. Unlike blackjack, in these games it is not possible to beat the house edge in the long run.

As indicated above, the largest category of skill games materials were on sports betting (233 items). The largest number of items was in the football category. The material included 49 items on making sports bets, 87 on football, 55 on baseball, 37 on basketball, and 5 on hockey.

Non-skilled or luck games

Of the 159 items on non-skilled games, 69 materials on how to play craps and other dice games constituted the largest category. Materials on other non-skilled games included roulette (21 items), baccarat (19 items), lottery (17 items), slots (17 items) and keno (16 items).

Discussion

An examination of the material available on gambling reveals, first, that a large number of books and other materials are available on gambling. Obviously, a large market exists for these materials. Second, the largest number of materials was in the category of books on games of skill. This is not surprising since knowing how to play these games can give a person an edge (to lose less often) compared to other, less skilled players (Turner & Fritz, 2001).

A surprisingly large number of materials are available on playing non-skilled games. This is surprising since a person cannot achieve an edge over the casino in games in which the outcome is completely determined by chance. In some cases, such as craps, learning about the rules of the games might help a person play the game and even decrease their losses (e.g. making pass line rather than field bets), but it is hard to imagine a list of rules filling out an entire book.

The large number of materials on craps and other dice games is perhaps due to the complexity of these games and the fact that the house edge on some of the bets is much lower than on others (e.g. free odds on pass line bets). The complexity and variable house edge in dice games promote a strong illusion of skill, which creates the market for these books. General books on gambling will often

discuss at length how to make free odds bets in craps. The description will often seem to imply that such bets allow the player to beat the house. It is speculated that much of the material on non-skilled games is similarly filled with misinformation about how to beat the house.

As a validity check we also counted the number of general, skill-oriented and chance-oriented materials on gambling in libraries and bookstores in the greater Toronto area. In both libraries and bookstores, skill-oriented books still dominated gambling-related materials, but only made up 41% and 45%, respectively, compared to 87% on the Web site. We suspect that the smaller number of skill-oriented books in libraries and bookstores is related to the less specialized nature of the audience that seeks out material in these venues. Interestingly we found few books on how to bet on sports in either the libraries or the bookstores in the greater Toronto area.

The Web site, library and bookstore samples together give us a picture of the types of gambling books available. Books on games of skill make up the bulk of material available, but information is also available on how to play various non-skilled games. To the serious gambler, the Web site offers mostly books on sports, racing and other skill-oriented games as well as a wealth of statistical information to help punters select their bets. By contrast, the library and bookstore collections have a much larger proportion of books on gambling in general. The general books were most often about casino games.

Study Two: A review of specific books

As described above, gambling books come in a variety of forms. Many gamblers read materials on gambling, and a lot of information on gambling is available. Some of the materials are general books, which discuss several games; others focus on a single game. We selected a number of these books and read, viewed or used them. Most of the material was in the form of a book, but one video, one software program, one magazine and four Web sites were also reviewed. The quality of these materials was examined in terms of the accuracy of their information. We first list the types of information and then examine each book to highlight its strengths and weaknesses.

Sample and source

A purposive sample of the 18 books and other materials and four Web sites was drawn. The authors collected books that would cover the full range of quality of the materials, from poor to excellent. Thus, the sample is a representation of the range of material available rather than a randomly drawn representation of the

average book available. The books were obtained from several sources, including large chain bookstores, small private bookstores, a discount book clearance centre, used bookstores, libraries and Web sites. The broadest collection of books was found on Web sites and in large bookstore chains. One store had three shelves devoted to gambling books. However, this also varied. In another chain store, only three books were found that were specifically on gambling. Smaller stores and used bookstores had fewer titles available, but those tended to be of a somewhat higher quality. Clearance houses had a mixture of titles, including some of the poorest materials. The libraries had a limited selection of materials, and while most were of relatively high quality, some were quite old.

Many books were examined in the bookstores or libraries, but we selected only a small number that we felt represented the full range of material in terms of quality and game topics.

Results

The analysis was completed in a three-stage process. First, we went through the books to examine the information. Specifically, we were looking for examples of accurate and inaccurate information in the books. Second, we gathered these notes together into broad categories, which described the general type of information and misinformation that we found. The list of material was gathered in a bottom-up manner from the source books, which was filtered through our understanding of the nature of probability, randomness and gambling economics. Third, we used our notes to catalogue the type of information found in each book. The information categories are listed below.

Information categories

Accurate information (see <u>Table 1</u>)

- Rules: How to play the games. The discussion of the rules of play range from one or two lines to complete chapters detailing each possible play and the consequences of each choice. Most of the books have a good description of the rules of the game and how to play it.
- 2. Money management: Several books have detailed descriptions on how to manage money while gambling, others discussed it only briefly. Typically, this material gives rough guides to determining bet size in relationship to the amount of money the player has brought to the game. In some cases, the book describes mathematical rules to determine one's bets. Some of the items discussed budgeting the gaming session in relationship to how much one can afford to lose.

- 3. <u>Probability:</u> Several books have good sections describing the nature of probability. Some do this in the form of a chapter; other have little bits of information scattered throughout the book. The former is most often found in general books, such as the *Idiot's Guide*, and the latter often in books on poker.
- 4. <u>Discouraging myths:</u> Some books have sections discouraging the belief in myths or erroneous beliefs about ways to beat the odds.
- 5. <u>Discouraging problematic systems:</u> Some of the books have good sections warning gamblers about the dangers of systems based on incremental betting. Several books discuss the dangers of the Martingale system in which the players double their bets after a loss. The problem with incremental betting is that it skews the outcome of the play so that most gambling sessions show a profit. This produces an overconfidence in the system so that the gambler quickly escalates the size of their bets. Eventually the player experiences a long losing streak and loses a great deal of money (see Turner, 1998, for further comments on the Martingale system).
- 6. <u>Short term outcomes:</u> Books on poker, especially, warn gamblers not to take short-term trends too seriously. This advice is given both for winning ("Don't get too confident when you win") and losing sessions ("Don't get upset when you lose").
- 7. <u>Emotional control:</u> Some of the books discuss the need to maintain control over one's emotions, but few offer any real advice on how to achieve this.

Misinformation errors (see Table 2)

- 1. <u>Misrepresentation of the likely outcome of winning:</u> Many books are called a Winner's Guide or say that the player can beat the odds. Even relatively good materials sometimes claim that they will help the reader beat the odds.
- 2. <u>Frequent or infrequent numbers:</u> Some books encourage the reader to look for frequently or infrequently occurring numbers. This advice is the opposite of discouraging myths.
- Prediction: These materials encourage the belief in predicting the outcome of a game. In the case of skill games, predictions might be accurate information, but in the case of non-skilled games, this is pure misinformation.
- 4. <u>Winning strategies:</u> Describes false winning strategies, including the use of money management as a means of winning in the long term. Many books seem to imply that

- money management techniques can help the player beat the odds. This, of course, is nonsense, but the authors are often careful not to make the claim too explicit. Sometimes the description of the system is so complex that it would be difficult for the average person so see the flaw in the logic.
- 5. Hot streaks or cold streaks: Many books reinforce the idea that there are such things as hot streaks, or hot tables. One book discusses how roulette runs in streaks and how the player can improve his or her chance of winning by following these streaks. In a sense, hot and cold streaks do seem to occur as part of the natural clumpiness of random events. However, the fact is that streaks are simply part of the unpredictable nature of random events and following them cannot help the player win.
- 6. <u>Encourage the belief in luck:</u> Many books either implicitly or explicitly encourage a belief in luck.
- 7. Problematic systems: Some books encourage problematic betting systems such as increasing one's bet after a loss. We have not yet come across any book that encourages the Martingale system a system of doubling bets after a loss and some books explicitly discourage it (see Turner, 1998, for further comments on the Martingale system). However, we have read several books that encourage some version of the d'Alembert system (increasing a bet by one unit after a loss, and decreasing it by one unit after a win) and other incremental betting systems. Several books encourage increasing bets while winning. These systems are not as dangerous as the Martingale system, but can still lead the player into large financial problems.
- 8. Biases: Many books encourage the search for biases. The hallmark of this type of material is that the reader does not need to know why a bias occurred, only how to measure it and track it. Most of the materials that discuss biases do not even address the issue of distinguishing chance from bias. Biased systems are somewhat more difficult to evaluate than other erroneous beliefs because real world biases do exist that make games somewhat predictable. A weighted dice is an example of a real world bias. In fact, unless care is taken to ensure that the dice are perfectly square and balanced, they will show a bias. Dice used in home board games, such as Snakes and Ladders, often have a bias towards the numbers five and six because the numbers are marked on the dice using holes. The side with one hole is heavier than the other sides, and the side with six holes is the lightest side. After 1,000 rolls of an ordinary board game dice, there is a 2% bias in favour of the five and six (unpublished dice rolls conducted by the first and third authors). However, casino dice, roulette

wheels and lottery balls are carefully manufactured to ensure that they do not have a bias, and are tested or maintained to ensure no bias occurs. Nonetheless, biases in many games are possible, so a system that encourages the search for a bias cannot automatically be dismissed as misinformation. However, few of the bias books bring up the issue of finding an apparent bias by pure chance (a type 1 error).

Evaluation of the overall quality of each book

After determining the general nature of the information contained in the books and other material, we went through the notes for each book to determine which type of information or misinformation was found in each book. In addition, we coded this material in terms of its overall impact and have determined a rough (quantitative) estimate of the overall quality of the book which we rated using a school-type grading system ranging from excellent "A" to very poor "F." These grades do not reflect whether or not the book tries to prevent problem gambling in any way, only how accurately it discusses gambling. The categories and overall grade score are given in Table 1. Note that these reviews are not exhaustive. It is possible that specific items mentioned might have additional strengths or weaknesses not discussed here.

Brief annotated book reviews

Table 1
Accuracy of information found in each item and overall score

Books, magazine or video	Overall score	Information	
Stanford and Wong: The Complete Idiot's Guide to Gambling Like a Pro	А	Rules Money management Probability Short term outcomes	yes yes yes yes
D. Ortiz On Casino Gambling	А	Rules Money management Probability Discourages systems	yes yes yes yes
A. Cardoza: How to Win at Gambling	С	Rules Money management Discourages systems	
J.E. Allen:		Rules	yes

Beat the Odds	С	Probability Discourages systems	some some
The Gambler Magazine	С	Rules Discourages systems	yes yes
A.D. Sachar: Winning Strategies for Lotteries and Sports Pools	О	Rules Money management Probability Short term outcomes	some
J. Simpson: Hot Lotto Numbers	F		
C. Gudgeon: Luck of the Draw	С	Rules Probability Debunks myths	yes some some
Professor Jones: The Basics of Winning Lotto/ Lotteries	F		
J. Patrick: John Patrick's Roulette	F	Rules Money management	yes some
R.T. Barhart: Beating the Wheel	D	Rules Probability	yes some
Slots with James Coburn	A	Rules Money management Probability Debunks myths	yes yes yes yes
K. Warren: A Winner's Guide to Texas Hold'em Poker	А	Rules Money management Probability Short term outcomes	yes
Wilson software: Turbo Texas Hold'em [poker]	А	Rules Money management Discourages systems* Short term outcomes	yes yes some yes
Edward O. Thorp: Beat the Dealer	В	Rules Probability	yes yes
J. L. Patterson: Blackjack: A Winner's Handbook	С	Rules Money management	yes yes

Andrew Beyer: The Winning Horseplayer	D	Rules yes Short term outcomes some
John Patrick: John Patrick's Sports Betting	F	Rules yes Money management some Discourages systems some

Note: The overall grade score (i.e. A or B or F, etc.) was determined subjectively but is roughly equivalent to scoring each yes as a 1, each "some" as 0.5, and then using the following formula: percent grade = 50 + 14 * (total accurate information score) - 6 * (total misinformation score).

Table 2 Misinformation found in each item

Books, magazine or video	Misinformation	
Stanford & Wong: The Complete Idiot's Guide to Gambling Like a Pro		
D. Ortiz: On Casino Gambling		
A. Cardoza: How to Win at Gambling	Winner's guide!	yes
Trow to wirr at Garnbining	Hot and cold streaks	yes
	Promotes systems	yes
J. Edward Allen: Beat the Odds	Winner's guide!	yes
Boat the Gade	Hot and cold streaks	yes
	Luck	yes
The Gambler Magazine	Frequent/infrequent misinformation	yes
	False winning strategy	yes
	Hot and cold streaks	yes
A.D. Sachar:	Winner's guide!	yes
Winning Strategies for Lotteries and Sports Pools	Prediction	yes
	False winning strategy	yes
	Promotes systems	yes
J. Simpson:	Winner's guide!	yes
Hot Lotto Numbers	Prediction	yes

^{*}This game/program actively discourages play that is too loose or aggressive and thus indirectly discourages playing "to get even," and any system that involves chasing.

	False winning strategy Luck	yes yes
C. Gudgeon: Luck of the Draw	Frequent/infrequent misinformation Prediction Luck Biases	some some some
Professor Jones: The Basics of Winning Lotto/ Lotteries	Winner's guide! Frequent/infrequent misinformation False winning strategy Luck Biases	yes yes yes yes yes
J. Patrick: John Patrick's Roulette	Winner's guide! Hot and cold streaks Promotes systems Biases	yes yes yes yes
R.T. Barhart: Beating the Wheel	Winner's guide! False winning strategy Biases	yes some yes
Slots with James Coburn	Winner's guide! False winning strategy	yes yes
K. Warren: A Winner's Guide to Texas Hold'em Poker	Winner's guide!	yes
Wilson Software: Turbo Texas Hold'em [poker]		
E.O. Thorpe: Beat the Dealer	Winner's guide!	yes
J.L. Patterson: Blackjack: A Winner's Handbook	Winner's guide! False winning strategy Promotes systems Biases	yes some yes some
A. Beyer: The Winning Horseplayer	Winner's guide! False winning strategy Biases	yes yes yes
J. Patrick: John Patrick's Sports Betting	Winner's guide! Frequent/infrequent	yes

1		
	misinformation	yes
	False winning strategy	yes
	Hot and cold streaks	yes
	Promotes systems	yes
	Promotes systems	yes

General books

General books on gambling tend to have accurate information because they are not really trying to sell a system per se, but are directed towards the novice gambler. They tell the reader how to play more than how to win. However, there is a common tendency of publishers to advertise gambling books as having winning strategies. Even fairly accurate books call themselves "winning strategies." These books should be read with some skepticism, but our experience is that most of these books provide accurate information. The best books in this category have sections on probability, and they debunk myths, discuss money management and explain why players will most likely lose in the long run. We have come across several books in this category, which appear to be excellent resources on gambling in general.

The Complete Idiot's Guide to Gambling Like a Pro by Stanford Wong and Susan Spector (1996) is a good general introduction to gambling. In addition to the rules it has a wealth of good information, including sections on money management, psychology and a glossary of gambling terms. Unlike most books, it does not encourage betting the maximum numbers of coins on slot machines, it encourages betting what one is comfortable with. The authors also provide a good introduction to probability and, in general, provide accurate information to the novice gambler. They also have a good section on the concept of luck, which discourages the reader from taking the idea of luck too seriously. The only objection we have to this book is that the authors jokingly encourage the reader to use slot machines as a way of testing out psychic ability. It would have been better if they had provided a disclaimer that by pure chance, it is often likely that people will appear to have their "psychic ability" confirmed. However, we consider this to be a minor point. Overall, this is an excellent introduction.

On Casino Gambling by Darwin Ortiz (1986) is also one of the better general introductions we have come across. This book has a brief introduction to probability, discourages myths, and has an excellent discussion of betting systems, such as doubling up after a loss, and the financial disaster that can result from following such a system.

How to Win at Gambling by Avery Cardoza (1997) is similar to many other general introduction books on the market: it has extensive sections on how to play blackjack, encourages placing free odds

bets in craps, and then goes on to explain the rules of a smattering of other games. The book focuses on games where the player can affect the outcome, such as blackjack. It has an involved description of craps, encouraging people to place free odds bets. It does mention that even with free odds bets the player is still playing against a house edge, but it also implies that one can beat the edge by combining increased bets while winning and placing free odds bets. On the plus side, though, it has a reasonably extensive discussion of why incremental betting systems are dangerous; however, the warning seemed to be too soft. In terms of misinformation, it encourages increasing bets after a few wins to take advantage of hot streaks. The coverage of how to minimize the house edge in blackjack and craps legitimizes their claim to provide "winning" strategies, but these strategies are not unique secrets and will not allow players to beat the house in the long run. It also suggests that card counting in baccarat is possible even though the general consensus amongst card counting experts is that card counting in baccarat is of little value (Arnold, 1978; Ortiz, 1987).

Another annoying feature is that the book advertises other products by the same publisher. For example, it introduces the idea of card counting and then suggests that the reader who wants more information can purchase another, much more expensive book. A lot of the books on gambling include advertisements for other materials. This book contains a lot of good information about how to play specific games, but is overall a mediocre book on gambling. It is somewhat hard to follow and poorly organized.

Beat the Odds: How to Win at Gambling by J. Edward Allen (1993) is fairly similar to Cardoza's book in format but is considerably shorter. Like Cardoza's book, it has a lot of ads for other expensive books and courses. Also like Cardoza, Allen encourages taking free odds bets in craps. The most notable difference from the other book is the extensive set of instructions for playing video poker at a minimum house edge. While the book encourages money management and not betting beyond ones means, when it comes to video poker it throws away those cautions and encourages betting the maximum number of coins. However, to be fair to Allen, we should point out that the house edge is much lower in video poker if the player makes the maximum bet.

This book has instances in which it reinforces the idea of luck. On the plus side, it does discourage betting systems; however, again on the negative side, some of its advice is nonsense. For example, near the end it tells the reader to "Leave a winner if possible. A small win is better than any loss. You can't go wrong leaving a winner, remember that. Let's win."

The Gambler is a magazine available for free at numerous casinos in Ontario. Other jurisdictions have similar free publications. This

magazine contains both accurate and inaccurate information. For example, an article on poker identified different types of poker players and gave strategy suggestions for each type (Steinberg, 2000). An article on blackjack (Tamburin, 2000) listed the effect of various rules on the house edge. Meanwhile, an article on slots (Mitchell, 2000) encouraged progressive slot players to play when the jackpot is big because the "mathematical odds" are that it will hit soon. The same article went on to encourage smart players to play after the tourists had finished priming the machines (e.g. from 2 to 4 am, or on Mondays). Thus, this magazine provides a mixture of good information and myths.

Overall most of the general materials on gambling appear to be reasonably accurate descriptions on how to gamble. However, as indicated above, some resources are better than others. Three other general books on gambling that we would recommend are *What Are the Odds?* (Orkin, 1999), *The New Gambler's Bible* (Reber, 1996) and *Gambling for Dummies* (Harroch, Krieger & Reber, 2001). These, however, have not been included in the tables due to space limitations.

Material on non-skill games: Lotteries

Winning Strategies for Lotteries and Sports Pools by A.D. Sachar (1992) is a curious blend of nonsense and truth. On the one hand, the book tells the reader how to determine if you have a talent for predicting lottery numbers. On the other hand, it discusses expected return, debunks some myths about numbers that are "due" to come up, tells the reader how to keep records to accurately judge success, discourages excessive spending, warns the reader about short-term fluctuations in chance, and so on. We give it a passing grade since it might actually do some good to people who find out they do not have predictive ability. Of course, those who figure out that they have a "luck" ability (see pp. 31—35) might be in real trouble.

Hot Lotto Numbers by Jean Simpson (1987) applies numerology to picking lucky lottery numbers and includes many charts. This book contains a short (12-page) description of the system, and the rest of the book is taken up with numerous charts and tables. The system is essentially a way of generating erratic or random-looking numbers to bet on. As a number generation process the system accomplishes its goal, but the numbers are more spaced out than true random numbers. The book promotes the myth that some numbers are lucky or hot and that it is possible to mathematically predict winning numbers. Reading it one almost gets the sense that the author was writing it as a joke.

Luck of the Draw by C. Gudgeon (1995) is not a book on how to play per se, but a factual account of how various people's lives have

been affected by large lottery wins. Along the way, it does, however, give a number of tips on playing from the various winners mentioned in the book. In general, many of the stories describe relatively positive outcomes, but the book also describes a number of people that spent their way through the money or were hit by a series of other tragic events after the lottery win.

While some of the information on lotteries is accurate, the book also makes erroneous claims. For example, at one point it says that the player is better buying two tickets for one lottery than two tickets for two different lottery draws, which is not true. In both cases, the player has two chances of winning and it does not matter at all if those two chances are for the same draw or for different draws. It also feeds into the myth that systems that use past numbers or systems that use a wheel approach for placing bets (a systematic approach to covering as many numbers as possible) may increase one's chance of winning. While the book does not advocate these systems, it does little to discourage them. The book does correct some erroneous beliefs, but encourages others. This book is worth reading since it provides a lot of insight into the lives of lottery players; however, as an advice book it receives a score of C. This book has been recently revised and expanded.

The Basics of Winning Lotto/Lotteries by Professor Jones (1994) offers sheer nonsense. The first part tells the reader how to search for biases in the numbers that come up. A diagram is given illustrating how differential drag might cause biases. However, the author states that the player does not need to know the how or why of biases, but only needs to measure them and profit from them. The second chapter tells people how to keep track of numbers that are due to come up. Logically, the benefit of keeping track of infrequent numbers and the benefit of keeping track of frequent numbers should cancel out — which, of course, they do. But Prof. Jones will never be wrong technically; odds are that if a number has not come up recently either it will not come up, supporting the "bias" theory, or it will come up, supporting the "due to come up" theory. As a result, the book will never be wrong, but at no point will the player be able to win by following this system (except by chance).

Material on other non-skilled games

John Patrick's Roulette by John Patrick (1996) is mostly nonsense about trends. Patrick has created a large number of books and videotapes on gambling and conducts seminars on how to gamble. Much of the system is based on the belief that if red is showing it will keep showing, and so on. The book also passes off money management as the key to beating the house. In addition, the book's tone is rather patronizing; at times even insulting

Beating the Wheel by Russell T. Barnhart (1992) is the most

sophisticated of the bias systems books we read. Unlike the other books that cover biases (Jones, 1994; Beyer, 1994), this book does discuss the physics behind why biases occur (e.g. faulty maintenance, poor design, tampering). It also stresses the importance of long-term observations to detect biases. Biased wheels almost certainly do exist, but making money from them may be much more difficult than the book implies. According to the book, if a wheel has a bias, a player should be able to detect it after 800 observations (several hours watching a specific wheel). Even the author admits that after 800 spins the bettor has a 20% chance that the bias is merely a type 1 error (finding a bias that is really only a random chance fluctuation). That's an expensive margin of error. Our own simulations have shown that to detect a weak bias would require as many as 4,000 observations.

The book is interesting as a historical account of biased wheel systems and criminal scams to cheat the wheel, but it is likely to lead most readers down the garden path into the realm of the type 1 error. The cover claims that the system was used to win over \$6 million. However, it turns out that most of these wins were the result of various criminal conspiracies. For example, one syndicate in Europe rigged wheels by replacing the screw holding the frets that separate numbers on the wheel with a smaller one so that the frets would be loose. When the ball hit a loose fret, it would bounce less, causing the ball to slow down and thus creating a bias for that part of the wheel. Today frets with screws are no longer in use. In addition, electronic sensors record every roll of the wheel so that the casino would most likely detect a bias (real or type 1 error) before the player would have a chance to profit from it. Thus, bias systems are really a thing of the past (Ortiz, 1986).

Winning Strategies: Slots with Video Poker (Scoblete, 1997), a video tape frequently advertised on television, is actually quite a good slots video. James Coburn hosts the introduction to the video: Frank Scoblete narrates the rest of the video. It discourages myths, tells the reader how the machines work and encourages money management. It encourages betting max coin (the maximum bet permitted), but also stresses the importance of figuring out what one can afford to bet. Our only real complaint about this video is that it is advertised as a guide to winning, but it really only tells the reader how to avoid losing too much. We suspect that a lot of people who purchase this video will be upset upon realizing that it does not actually tell them how to win. As with many materials on gambling, it contains a plug for another product: a video on how to play video poker. Some parts of this video, such as the section on myths, would be good for clients in treatment for problem gambling, but caution is advised in that the video is intended to promote slot play, not to prevent it. (See Turner, 2001, for a more extensive review of this video.)

Material on skill-oriented games: Poker

Most of the information we have seen in books on how to play poker is quite accurate. Poker books often talk about the short-term vagaries of chance. For example, a book might warn the reader how sometimes they will see someone win a hand with a poor starting set of cards (a 2 and a 4 unsuited), while someone else with a pair of aces might be beaten. Such events do happen, but the player is discouraged from changing their strategy when such an event occurs. They encourage the good player to be patient because over the long term, skill will produce success.

We have not yet seen a bad book on how to play poker. However, these books usually do not accurately describe the difficulty of becoming a professional card player but make it seem as if poker is a realistic way of making money.

A Winner's Guide to Texas Hold'em Poker by Ken Warren (1996) is a comprehensive description of how to play Texas hold'em poker, one of the most common versions of poker found in casinos. It contains a wealth of information about the chances of winning the pot given one's cards and the bets of other players. It does not have a section on probability, but scattered throughout are references to probability. For example, on pages 48 and 49, the author writes: "It is likely that you will go through long periods of not getting a playable hand.... Don't get discouraged. It's normal and you should not let it affect your decisions. The important thing to remember is that your goal is not to play hands of poker, but to make the best decisions."

Tables on the chances of winning with various combinations of cards are provided at the back of the book. Practical suggestions are given for virtually any hand. Generally, the reader is encouraged to play conservatively and wait for good cards, but to play aggressively when he or she has good cards.

Turbo Texas Hold'em by Wilson Software (1997) is an elaborate computer program designed to teach how to play hold'em poker. In addition to basic game play, the program provides extensive statistics on playing style, including how loose or aggressive the user plays against the computer opponents. The opponents in this game are not random, but have programmed profiles about how they should react to a large number of specific poker situations. The profiles are designed to match the types of players one might meet around the average poker table, with names that are amusing and relevant. The game comes with 40 pre-designed profiles. Player profiles vary from tight (folds most hands) to loose (stays in most hands) and from passive (checks or calls, but rarely bets or raises) to aggressive (bets or raises). The user can select their opponents to practice playing against specific types of players such as loose-

and-aggressive players or tight-and-passive players to learn how to counter these styles. The user can also create custom profiles for the opposing players. The program provides an incredible wealth of information on strategies and probabilities. A player that thinks he or she is as good as the best might get a wake-up call with this tool. The program does not deal with the emotional side of gambling, but overall is an excellent way to learn how to play hold'em poker.

Because one of the authors (BF) is an avid poker player, we have included a few additional references on that game, which were not included in Table 2. Some poker books are written for serious players of a specific form of poker, such as *Seven Card Stud for Advanced Players* by Sklansky, Malmuth and Zee (1991). In contrast, Steiner's (1996) *Thursday Night Poker* is intended for casual recreational players. Caro's (1986) *Poker for Women* describes how women can gain an edge over men in poker by taking advantage of male players' tendency to underestimate female opponents, or gentlemanly courtesy towards female opponents. The book is directed towards novice players. *Poker for Dummies* by Harroch and Kreiger (2000) is oriented toward the novice player who might be beginning to play in public card rooms. This book covers the most common forms of poker dealt in a casino (i.e. seven card stud, hold-em, Omaha, etc.).

These books contain valuable information for novice players or for players seeking to improve their skill. Statistical reasoning, bluffing, money management and reading opponents are discussed. Presumably, poker skills can be improved through reading and practice. *Poker for Dummies* is an excellent book for counsellors seeking to learn more about the game and today's poker scene. Clients in treatment for gambling problems, however, should be cautioned that most poker books underestimate the difficulty of becoming a professional player. Players who succeed financially are statistically rare, and those who earn more than a minimum wage are rarer still (Hayano, 1982). Success at poker requires emotional control and discipline, in addition to knowledge about the game. Little information on how to obtain or maintain emotional control is found in these books.

Material on skill-oriented games: Blackjack

Beat the Dealer by E.O. Thorpe (1966) is a great book, a classic; it is a must read for any historian on gambling. Not only fun to read, the book has a lot of carefully considered mathematically-based rules for playing blackjack. Thorpe first describes in detail the basic system for blackjack and the computer simulations used to compute the optimal system for play. He then goes on to describe modification to the basic strategy depending on the cards that have been drawn previously (card counting). The book is out of date in that a lot of the rules of blackjack no longer apply — they were

changed because of this book. However, it is still an interesting book.

Blackjack: A Winner's Handbook by J.L. Patterson (1990) has a lot of good material in it, including a bibliography on blackjack; various card systems; money management; and drills to learn card counting. It is also the only book we have seen that gives concrete advice on how to attain and maintain emotional control. Patterson also discusses how to play in the modern casino where card counting is no longer always possible. One of the clear messages from the book is that card counting is not an easy way to make money.

On the down side, this book discusses the search for table biases as a result of like-card clumping, and the advice is a lot like other books that discuss biases. The validity of his claim regarding likecard clumping is difficult to evaluate. On the one hand, shuffling, as he says, is not an efficient randomization process, but clumpiness is also a common occurrence in the normal nature of random events (Gould, 1991). Patterson might be underestimating how clumpy randomness is supposed to be. But the solution to the clumpiness problem, shuffle tracking, is logical and might work whether or not cards are showing a bias or merely showing random variation. In shuffle tracking, the player first card counts to determine if a section of cards in the deck is favourable to the player (more high cards than low cards) or unfavourable to the player (more low cards than high cards). Then, while the cards are being shuffled for the next session, he or she keeps track of the clumps of player-favourable cards counted in the previous session, and bets more during the player-favourable clumps. This system should theoretically produce an advantage to the player.

Some of his other suggestions are definitely based on misconceptions about random numbers. For example, his Takedown strategy is a system of incremental betting that promotes the illusion that a mathematical system for bet size could somehow provide the player with an edge. Although the book includes some misinformation, overall, it appears to be worth reading, especially for its discussion on discipline and self-control.

Material on other skill-oriented games

The Winning Horseplayer by Andrew Beyer (1994) includes both extremes — some good advice and some poor advice. In the 1970s and 1980s, Beyer popularized speed handicapping, a method for adjusting performance figures to determine the true speed of a horse. However, since most people now use speed handicapping (due in part to Beyer's book on this technique), adjusted speed is no longer a sure way to make money. This book deals with trip handicapping in which the punter adjusts the speed figures for a horse to take into account the actual circumstances of previous

races. For example, if a horse was boxed in (one horse right in front of him and another beside him) during the early part of the race, but went on to come in third, its overall speed is an underestimate of its actual ability. If other bettors were not aware of this fact, the payout odds for that horse might be high enough to overcome the house edge. Trip handicapping is likely to be an effective means of finding underrated horses to bet on. But the system requires a lot of observation and is thus really only practical for people that spend day after day at the races.

On the plus side, the book includes a step-by-step guide on how to read the daily racing form. On the negative side, the section on tracking biases may be pure nonsense. The discussion of biases was written in the same manner as Prof. Jones's lottery book and even used similar words about not needing to know how the bias occurred. According to the book, sometimes a track will have a bias in favour of the outer part of the track, while at other times, a bias in favour of the inside track. Biases are determined by looking for unusual events such as horses that run on the outside winning more often than usual. Since both inner and outer track biases occur, it is likely that both biases are merely observations of normal random events. However, as with roulette, we can not rule out the possibility that an actual track bias might occur due to the firmness of the track or a recent rainfall. The manner in which Beyers describes the biases mysteriously emerging for a short period of time and then disappearing again suggests that these biases are type 1 errors random chance events. Interestingly, since speed handicapping does work and would provide important information, it is unlikely that the player would ever notice if biases were not contributing anything to the system. However, the problem with trip handicapping is that it normalizes the obsessive study of the track and the progress of the race.

John Patrick's Sports Betting (1996) is similar to his book on roulette. It is patronizing and filled with his own theories about trends. Like the books promoting biases (Beyer, 1994; Jones, 1994), he argues that one does not need to know why a trend occurs. For example, he says: "In sports betting, as in every other betting endeavor, trends dominate. Why? I dunno. I haven't got a clue as to why they dominate, but they do" (p. 9).

Wood (1992) has demonstrated that trends and streaks in sports games occur no more often than is expected taking into account the underlying ability by team and random chance. Trends per se, have no predictive power. Ironically, the belief in streaks may sometimes open up betting opportunities for astute handicappers to bet against the streak (Paulson, 1994). As in his roulette book, Patrick (1996) is careful to describe his theory of trends in such a way that his theory will always make a correct prediction. Not only does he advocate the occurrence of winning streaks, he also makes it clear that the

opposite streak could occur at any minute (see the story of Ben. A. Loser, p. 10). The same point is made above about Professor Jones's book. His theory can never be proven wrong through experience because the two opposite outcomes are always predicted.

Interestingly, Patrick (1990) explicitly rejects the idea of handicapping sports games and the value of team statistics (p. 4). On the plus side, the book does emphasize money management and not betting more than one can afford. The book does discourage doubling after a loss and ridicules the idea of luck. In terms of information, the book discusses the various types of bets available and the pros and cons of each, but we found his explanation of how to read the line rather hard to follow. On the negative side, he encourages incremental bets while winning. He also presents his theory of regression betting — not reinvesting all of the money that was won, but keeping some of it — as if it were a way of making money in the long term. This book is the only skill-oriented book we reviewed that we have given a failing grade.

Web sites

In recent years, a growing amount of information on gambling has become available on Web sites. Some sites are game specific, while many others offer information on a wide range of games. Some sites offer good information (www.wizardofodds.com), others offer a mixed quality of information (www.clubchance.com), and others offer mostly inaccurate information (www.lotterysoftware.com). All of these sites, good or bad, either contain advertisements for online casinos and other gambling venues, or are trying to sell some product that is supposed to improve ones chance of winning. In many of the mediocre Web sites one has to hunt around for accurate information amongst the advertisements and product promotions. One site, www.professionalgambler.com, offers a service selling statistical information to serious sports gamblers to help them place their bets. However, it also includes a tongue-incheek section on 10 ways to throw away money in sports betting in which it discourages poor betting strategies such as increasing bets to make up for losses and other harmful systems of play. We do not have the expertise to evaluate the legitimacy of their statistical information, but the information related to responsible gambling is unusually good.

The best Web site we have found so far is the Wizard of Odds site (www. wizardofodds.com). This site includes a question-and-answer section for topics that are not covered by the Web site. This site also includes an annotated bibliography of books on gambling.

Information and ratings of the online sites can be found in <u>Table 3</u> and <u>Table 4</u>.

Table 3: Accuracy of information found on Web sites

Web sites	Overall score	Information
www.wizardofodds.com	А	Rules yes Money management Probability yes Debunks myths yes Discourages systems Short term outcomes yes
www.clubchance.com	С	Rules yes Money management Debunks myths yes
www.professionalgambler.com	В	Rules yes Money management yes Debunks myths yes Discourages systems yes
www.lotterysoftware.com	F	Rules yes

Table 4: Misinformation found on Web sites

Web sites	Misinformation	
www.wizardofodds.com		
www.clubchance.com	Winner's guide! yes Hot and cold streaks yes Luck yes Promotes systems some	!
www.professionalgambler.com	Winner's guide! yes	

	Prediction	yes
www.lotterysoftware.com	Winner's guide! Frequent/infrequent misinformation Prediction False winning strategy Promotes systems Biases	yes yes yes yes yes yes

General discussion

An examination of the material available on gambling reveals, first, that a large number of books and other materials are available on gambling. The majority of these items are on games of skill. The relative percentage of different materials varied in each of the three sources we examined. Both the libraries and the bookstores included more general items on gambling, while the Web site catalogue of resources was heavily geared towards skill-oriented games. It is likely that more books exist on specific skill games, but that the market for general books on gambling is larger. The on-line catalogue reflects the numbers of titles available on skill games, but the audience for many of these materials is rather small.

Detailed examination of the materials revealed a few important facts. First, there are good books on how to gamble that accurately portray the nature of randomness and the chances of winning. There are also a lot of poor quality books available; some filled with misinformation or myths that encourage the reader to make bad decisions.

Most of the books reviewed have some combination of accurate and inaccurate information. One important implication is that public information on gambling and problem gambling should include information about good and bad sources of information on gambling. Professionals in the field of problem gambling need to somehow inform the public about the misinformation present in some books. This paper is a start in that direction. However, monitoring the quality of books on gambling would be an enormous task. The greatest difficulty in accomplishing this goal would be in the area of skill-oriented games. Systems for card games are relatively easy to evaluate because it is easy to compute the probability of drawing each specific type of hand. Computer simulations of these systems can be time-consuming, but usually yield precise answers. However, a book that offers a system of handicapping in some sport (horseracing, football, etc.) may or may not be providing accurate information to their readers. The validity of the system can only be determined with extensive research and computer simulations. Our

interest in this field is in protecting consumers from misinformation; however, not in evaluating the relative merits of one type of handicapping over another. A more modest goal might be the publication of a list of recommended and not recommended sources of information on gambling.

The results indicate that a lot of written material on how to gamble is on the market. Some of this information is good, some of it potentially quite harmful. A persistent observation through this research process was the staggering number of publications on how to "win." Even fairly good books describe themselves as offering "winning strategies." This is not surprising; it is hard to imagine people buying a book on "how to lose." Unfortunately, this likely presents a barrier to getting good information out to the public. We suspect that would-be gamblers are more likely to read something entitled "How to win" than something entitled "How not to lose too much." Can truth compete with lies in an open market? Is it possible to encourage the publishing industry to publish books that are more accurate?

In addition, we found few materials that cover the topic of emotional control or the psychology of gambling. Perhaps professionals in the treatment and prevention fields could create self-help guides to staying in control geared towards the audience of people that read the books on how to gamble.

The data provided in this paper actually underestimates the total number of materials that the gambler can draw on. We did not count materials specifically on sports games, but only those that were marketed as gambling materials. Bookstores often have several shelves of material available on sports games. These books include materials on how to play, how to coach games, statistics on teams or biographies of players and coaches. Gamblers may read such material in the hopes of improving their betting strategy. We also did not count the number of materials on investments because of the difficulty in separating sound investing from gambling. One of the bookstores we visited had over 800 books available on investing and finance. The task of monitoring the quality of investment advice would be a much greater challenge than the task of monitoring gambling materials.

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